route optimization steps are repeatedly performed until the total network cost increase is minimized. In this manner, the optimal modification of the network information can be obtained.

However, in the claimed invention, after an initial topology of spans is found that is sufficient for routing all working demand flows (step A in Claim 1), an additional set of spans is found that "ensures restorability of working demand flows that are required to be restored in case of failure of any span in the initial topology of spans" (step B), and then a final topology of spans is found in step C.

Importantly, Yoshida contains nothing that remotely suggests step B of Claim 1 in the present application. There is nothing in Yoshida that teaches or suggests anything to do with finding spans used for restoration of working demand flows. Such spans, used for restoration, relate to the survivability of the network after a span failure. This spare capacity is used only when there is a failure in the network. Yoshida does not discuss in any manner restoration of flows after a span or node failure, or the survivability of networks in general. The "route candidates" disclosed by Yoshida at Col. 3, lines 55-65, are not applicable to step B in Claim 1 of the present application.

Applicants further note that in contrast to Yoshida, the present application describes and claims the determination of <u>optimal physical layer</u> topology <u>and</u> corresponding optimal working routing and restorability arrangements simultaneously. Yoshida does not consider survivability aspects of a network, particularly where both topology and re-routing after a failure have to be considered for survivability.

In addition, the present application claims a method wherein the topology, the routing, the capacity to support working routing and survivable re-routing with spare capacity sharing are all collectively optimized for minimum total cost. Yoshida only claims to optimize routing cost

for working routes alone, over existing topology. Routing within a larger collectively optimized situation, as obtained with the present invention, is not the same as when routing is considered in isolation.

For the foregoing reasons, applicants submit that Yoshida does not anticipate independent Claim 1 in the present application. Independent Claims 11 and 21 are also patentable for the same reasons discussed above with respect to Claim 1. Applicants further submit that dependent Claims 2-10, 12-19, and 22-30 are further patentable for their dependence on patentable Claims 1, 11, and 21, respectively, and for the additional subject matter they recite.

CONCLUSION

Applicants have carefully considered the Office Action and the cited Yoshida reference, and respectfully submit that Claims 1-30 in the present application are patentable over the prior art. Reconsideration of the claims and allowance of the application at an early date is respectfully requested.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid and addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date.

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